

Name \_\_\_\_\_ Period \_\_\_\_\_

**Chemistry Practice Test  
The Mole**

**Form P**

**Part I:** Calculate the molar mass of each of the following compounds (correct to one place after the decimal). Show your work!

1.  $\text{H}_2\text{S}$  \_\_\_\_\_ g/mole

3.  $\text{KHCO}_3$  \_\_\_\_\_ g/mole

2.  $\text{I}_2$  \_\_\_\_\_ g/mole

4.  $\text{Mg}(\text{NO}_3)_2$  \_\_\_\_\_ g/mole

**Part II:** Solve each of the following mole problems. You must show work in order to get credit. Use all the rules for sig. figs. and include units in your answers.

1. How many moles of aluminum are there in 15.32 g of aluminum?

1. \_\_\_\_\_

2. How many moles of sodium chloride ( $\text{NaCl}$ ) are there in 152.3 g of sodium chloride?

2. \_\_\_\_\_

3. How many grams of lead ( $\text{Pb}$ ) are there in 0.535 moles of lead ?

3. \_\_\_\_\_

4. How many molecules of ethane ( $\text{C}_2\text{H}_6$ ) are in 30.0 g of ethane?

4. \_\_\_\_\_

**Part III:** Solve the following molarity problem. Again you must show work to get credit. Please use all rules that you have learned for problem solving.

1. What is the molarity of a solution obtained by dissolving 267.0 grams of  $\text{AlCl}_3$  in 2.000 Liters of solvent?

1. \_\_\_\_\_

2. How many grams of NaOH are needed to prepare 3.500 L of a solution that is 0.250 M?

2. \_\_\_\_\_

**Part IV:** Solve the following formula problems. Use sig figs and show your work.

1. Ethane is 79.85 % carbon and 20.15% hydrogen. It has a molar mass of 30.08 g/mole. What is the empirical and molecular formula of methane?

1. \_\_\_\_\_

2. What is the percent by mass composition of all the elements in  $\text{NaHCO}_3$ ?

2. \_\_\_\_\_